

WHAT IS CLAIMED IS:

1. An optical scanning apparatus, comprising:

at least two light sources each configured and arranged

5 to emit a light beam;

at least two beam shaping mechanisms each configured and arranged to shape each light beam;

a light deflector configured and arranged to deflect each light beam in a continuously changing direction thereby converting each light beam into a scanning light beam; and

10 at least two scanning beam focusing mechanisms each configured to bring scanning light beam to a focus on a photoconductive surface, each of said at least two scanning beam focusing mechanisms satisfying an equation:

15 $\Delta L \cos \theta > R/2$ at a junction of the at least two scanning light beams with each other on the photoconductive surface,

20 wherein ΔL represents an inherent light pass length variation, α represents an incident angle, and R represents an inherent marginal distance.

2. The optical scanning apparatus as defined in Claim

1, wherein each of said at least two scanning beam focusing mechanisms includes a telecentric $f\theta$ lens system.

25 3. The optical scanning apparatus as defined in Claim

1, wherein each of said at least two scanning beam focusing

mechanisms includes a telecentric $f\theta$ mirror system.

4. The optical scanning apparatus, comprising:

at least two light source means for emitting a light

5 beam;

at least two beam shaping means each for shaping the
light beam;

light deflecting means for deflecting each light beam in
a continuously changing direction thereby converting each

10 light beam into a scanning light beam; and

at least two scanning beam focusing means each for
bringing the scanning light beam to a focus on a
photoconductive surface, each of said at least two scanning
beam focusing means satisfying an equation:

15 $\Delta L \cos \alpha > R/2$ at a junction of the at least two scanning
light beams with each other on the photoconductive surface,
wherein ΔL represents an inherent light pass length
variation, α represents an incident angle, and R represents an
inherent marginal distance.

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5. The optical scanning apparatus as defined in Claim
4, wherein each of said at least two scanning beam focusing
means includes a telecentric $f\theta$ lens system.

25 6. The optical scanning apparatus as defined in Claim
4, wherein each of said at least two scanning beam focusing

means includes a telecentric $f\theta$ mirror system.

7. A method of optical scanning, comprising the steps of:

- 5 emitting at least two light beams;
shaping said at least two light beams;
deflecting each of said at least two light beams in a continuously changing direction so as to convert each of said at least two light beams into a scanning light beam; and
10 bringing the scanning light beam to a focus on a photoconductive surface using at least two scanning beam focusing mechanisms each of which satisfies an equation:
$$\Delta L \cos \alpha > R/2$$
 at a junction of the scanning light beam with the other scanning light beam on the photoconductive surface,
15 wherein ΔL represents an inherent light pass length variation, α represents an incident angle, and R represents an inherent marginal distance.

20 8. The method as defined in Claim 7, wherein each of said at least two scanning beam focusing mechanisms includes a telecentric $f\theta$ lens system.

9. The method as defined in Claim 7, wherein each of
25 said at least two scanning beam focusing mechanisms includes a telecentric $f\theta$ mirror system.

10. An image forming apparatus, comprising:

a photoconductive member; and

an optical scanning apparatus including,

at least two light sources each configured to emit
a light beam;

at least two beam shaping mechanisms each
configured to shape the light beam;

a light deflector configured to deflect each light
beam in a continuously changing direction thereby converting
each light beam into a scanning light beam; and

at least two scanning beam focusing mechanisms
each configured to bring the scanning light beam to a focus on
a surface of said photoconductive member, each of said at
least two scanning beam focusing mechanisms satisfying an
equation:

$\Delta L \cos \alpha > R/2$ at a junction of the scanning light beam
with the other scanning beam on the surface of said
photoconductive member,

wherein ΔL represents an inherent light pass length
variation, α represents an incident angle, and R represents an
inherent marginal distance.

11. The image forming apparatus as defined in Claim
10, wherein each of said at least two scanning beam focusing
mechanisms includes a telecentric $f\theta$ lens system.

12. The image forming apparatus as defined in Claim 10, wherein each of said at least two scanning beam focusing mechanisms includes a telecentric $f\theta$ mirror system.

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13. An image forming apparatus, comprising:
photoconductive means for being photoconductive; and
an optical scanning apparatus that includes,

at least two light source means each for emitting
a light beam;

at least two beam shaping means each for shaping
the light beam;

light deflecting means for deflecting each light
beam in a continuously changing direction so as to convert
each light beam into a scanning light beam; and

at least two scanning beam focusing means for
bringing each scanning light beam to a focus on a surface of
said photoconductive means, each of said at least two scanning
beam focusing means satisfying an equation:

$\Delta L \cos \alpha > R/2$ at a junction of the scanning light beam
with each other on the surface of said photoconductive means,
wherein ΔL represents an inherent light pass length
variation, α represents an incident angle, and R represents an
inherent marginal distance.

14. The image forming apparatus as defined in Claim

13, wherein each of said at least two scanning beam focusing means includes a telecentric $f\theta$ lens system.

15. The image forming apparatus as defined in Claim 13, wherein each of said at least two scanning beam focusing means includes a telecentric $f\theta$ mirror system.

16. A method of image forming, comprising the steps of:

charging a surface of a photoconductive member;
emitting at least two light beams;
shaping said at least two light beams;
deflecting each of said at least two light beams in a continuously changing direction thereby converting each of said at least two light beams into a scanning light beam; and
bringing the scanning light beam to a focus on the surface of the photoconductive member with at least two scanning beam focusing mechanisms each of which satisfies an equation:

$\Delta L \cos \alpha > R/2$ at a junction of the scanning light beam with each other on the photoconductive surface,
wherein ΔL represents an inherent light pass length variation, α represents an incident angle, and R represents an inherent marginal distance.

17. The method as defined in Claim 16, wherein each of

said at least two scanning beam focusing mechanisms includes a telecentric $f\theta$ lens system.

18. The method as defined in Claim 16, wherein each of
5 said at least two scanning beam focusing mechanisms includes a telecentric $f\theta$ mirror system.

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